

been sighted within five metres of perennial streams (Daltry and Martin 1997; Ishwar 2000). The present observation reveals that this species may also occur a considerable distance away from water. The altitude of this locality was 1,450 m msl, and all previous sightings of *M. indicus* were within 1,000-1,500 m. This indicates the restricted distribution of this species with respect to altitude. Though the present record lies within the distributional range of this species, lack of precise locality data makes the present observation noteworthy. This is also one of the four reliable records

available for this species since its description (Daltry and Martin 1997; Vasudevan 1997; Ishwar 2000), which is the second for the Western Ghats of Kerala.

ACKNOWLEDGEMENTS

We thank James Zacharias, Wildlife Warden, Eravikulam National Park and the District Forest Officer, Munnar for logistic support in the field. S.K. Dutta, Utkal University, Bhubaneswar offered comments on an earlier draft of the manuscript.

REFERENCES

- BOULENGER, G.A. (1890): The Fauna of British India. Reptilia and Amphibia. Taylor and Francis, London. xvii + 541 pp.
- DALTRY, J.C. & G.N. MARTIN (1997): Rediscovery of the black narrow-mouthed frog, *Melanobatrachus indicus* Beddome, 1878. *Hamadryad* 22(1): 57-58.
- DUTTA, S.K. (1997): Amphibians of India and Sri Lanka (Checklist & Bibliography). Odyssey Publishing House, Bhubaneswar, India. 126 pp.
- ISHWAR, N.M. (2000): *Melanobatrachus indicus* Beddome, 1878, resighted at the Anaimalai Hills, south India. *Hamadryad* 25(1): 50-51.
- VASUDEVAN, K. (1997): Rediscovery of the black microhylid (*Melanobatrachus indicus*). *J. Bombay Nat. Hist. Soc.* 94: 170-171.

18. NEW RECORD OF THE SIMPLE ASCIDIAN *STYLELA PLICATA* (LESUEUR 1823)¹

V.K. MEENAKSHI² AND S. SENTHAMARAI³

¹Accepted, December 29, 2004

²Department of Zoology, A.P.C. Mahalaxmi College for Women, Tuticorin 628 002, Tamil Nadu, India. Email: vkmeenakshi@yahoo.com

³Ameen Teacher Training Institute, Puthur, Somasipadi, Thiruvannamalai 606611, Tamil Nadu, India.

A simple ascidian — *Styela plicata* (Lesueur 1823) is reported for the first time from Tuticorin harbour, Tamil Nadu, India. Only two species of the genus *Styela* have been reported earlier from India (Renganathan 1981; Krishnan *et al.* 1989); both the species reported, *Styela bicolor* and *Styela canopus*, occur as fouling organisms in Tuticorin and Bombay harbour.

Styela plicata (Lesueur 1823)

Occurrence and distribution: Numerous specimens were collected from the sheltered waters of Tuticorin harbour (8° 48' N, 78° 11' E), seen attached to piers, pilings, other harbour installations, corals and also from the pearl oyster cages suspended at a depth of 4-5 m. This species has been previously reported from Australia (Hartmeyer and Michaelsen 1928; Kott 1952, 1972 a, b, c, 1975), Hong Kong (Tokioka and Nishikawa 1975; Kott and Goodbody 1982), western Indian Ocean (Michaelsen 1918), Japan (Tokioka 1960), West Indies (Van Name 1921, 1930, 1945), Atlantic Ocean and Mediterranean Sea (Harant 1927a, b; Harant and Vernieres 1933; Heller 1877) and eastern coast of North America (Van Name 1912; Huntsman 1912, 1913).

Synonymy: *Ascidia plicata* Lesueur 1823, p. 5, *Ascidia*

plicata: DeKay 1843, p. 259, *Styela gyrosa*: Heller 1877, p. 255, *Styela gyrosa*: Herdman 1882. p. 155, *Styela plicata*: Traustedt 1883a, p. 123, *Styela plicata*: Traustedt 1883b, p. 478, *Styela plicata*: Traustedt 1885, p. 44, *Styela pinguis*: Herdman 1899, p.40, *Tethyum plicatum*: Hartmeyer 1909, p. 1359, *Tethyum plicatum*: Van Name, 1912, p. 569, *Styela plicata*: Huntsman 1912, p. 149, *Styela plicata*: Huntsman

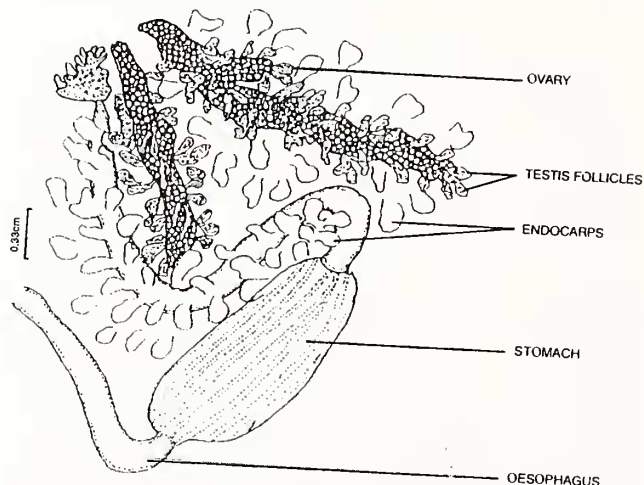


Fig. 1: *Styela plicata*: gut loop and gonads

1913, p. 489, *Styela plicata*: Redikorzev 1916, p. 197, *Styela plicata*: Michaelsen 1918, p. 36, *Styela plicata*: Van Name 1921, p. 435, *Styela plicata*: Harant 1927a, p. 243, *Styela plicata*: Harant 1927b, p. 7, *Styela plicata*: Van Name 1930, p. 492, *Styela plicata*: Harant and Vernieres 1933, p. 31, *Styela plicata*: Van Name 1945, p. 295, *Styela plicata*: Kott 1952, p. 216, *Styela plicata*: Tokioka 1960, p. 213, *Styela plicata*: Millar 1966, p. 370, *Styela plicata*: Kott 1972a, p. 185, *Styela plicata*: Kott 1972b, p. 239, *Styela plicata*: Kott 1972c, p. 254, *Styela plicata*: Kott 1975, p. 13, *Styela plicata*: Tokioka and Nishikawa 1975, p. 338, *Styela plicata*: Kott 1985, p. 116.

Taxonomy: Class: Ascidiacea, Order: Pleurogona, Suborder: Stolidobranchia, Family: Styelidae, Subfamily: Styelinae.

Description: Individuals upright, cylindrical, fixed by the posterior end of their body. Size of the specimen 1-4 cm. Animals sessile, without any roots or stalks. Test firm, slightly translucent, yellowish orange with epibionts like *Didemnum psammathodes* and *Distaplia nathensis* attached to the surface. Surface of the test with many faint longitudinal and circular creases. Branchial aperture terminal, atrial aperture antero-dorsal. Apertures on very short conical siphons heavily pigmented. Siphon lining with prominent flattened spines.

Internal structure: The body wall is thick and has well developed circular muscles crossed by longitudinal muscles radiating from the siphons. Dorsal tubercle has a U-shaped slit directed anteriorly with both horns turned in. There are 4 wide branchial folds with 18-25 internal longitudinal vessels crowded on the folds and 6-10 between the folds. There are 5-6 long stigmata in each mesh. Gut loop is very narrow and

deeply curved (Fig. 1). Stomach is long and occupies more than half of the ascending limb of the primary loop. It has many fine longitudinal folds arranged parallel to one another on its external surface. Rectum runs parallel to the descending limb of the primary gut loop and extends anteriorly towards the base of the atrial aperture. The anus is deeply lobed. There are two gonads on the left and four on the right, radiating from the atrial aperture. Each gonad has a central tubular, long ovary bordered by branched testis follicles attached to the body wall. Endocarps are crowded, distributed on the body wall along both sides of the intestine, enclosed in the gut loop and on the body wall between the gonads.

REMARKS

The firm, slightly translucent yellowish orange test, heavily pigmented short conical siphons, deeply curved gut loop, crowded endocarps, long branched testis follicles distributed along the length of the ovary are characteristic to the species. This species is being reported for the first time in Indian waters. The specimen studied has been deposited in the Museum of A.P.C. Mahalaxmi College for Women (Regn. No. APCMAS 2002).

ACKNOWLEDGEMENTS

The authors are grateful to Dr. T.K. Renganathan, Retired Professor of Zoology, V.O. Chidambaram College, Tuticorin for his kind help in confirming the identification, and to the scientists at CMFRI, Tuticorin for the samples and to the UGC, New Delhi for financial assistance.

REFERENCES

- DEKAY, J.E. (1843): Zoology of New York. Part 5. Mollusca. Albany. 271 pp.
- HARANT, H. (1927a): La faune ascidiologique de Banyuls et de Celte: essai de revision des ascidies de la Mediterranee occidentale. *Annls. Inst. Oceanogr. Monaco* 4: 209-251.
- HARANT, H. (1927b): Introduction synoptique une faune do France de Tuniciers I. Ascidies Stolobrachiates. *Annls. Inst. Oceanogr. Monaco* 508: 1-10.
- HARANT, H. & P. VERNIERES (1933): Tuniciers – Fascicule I. Ascidies. *Faune Fr.* 27: 1-101.
- HARTMEYER, R. (1909): Ascidien (Continuation of work by Seeliger) Pp. 1281-1772. In: Klassen und Ordnungen des Tierreichs (Ed: Brom, H.G. & C.F. Winter). Leipzig.
- HARTMEYER, R. & W. MICHAELSEN (1928): Ascidae Diktyobranchiae and Ptychobranchiae. *Fauna Subwest. Aust.* 5: 251-460.
- HELLER, C. (1877): Untersuchungen uber die Tuniciten des Adriatischen und Mitteleeres (3). *Denkschr. Akad. Wiss. Wien.* 37: 241-275.
- HERDMAN, W.A. (1882): Report on the tunicata collected during the voyage of H.M.S. "Challenger" during the years 1873-76. Part I. *Ascidae simplices. Zoology* 6: 1-296.
- HERDMAN, W.A. (1899): Descriptive catalogue of the Tunicata in the Australian Museum. *Australian Museum, Sydney Catalogue* 17: 1-594.
- HUNTSMAN, A.G. (1912): Holosomatous ascidians from the coast of Western Canada. *Contr. Can. Biol. Fish. 1906-1910*: 103-185.
- HUNTSMAN, A.G. (1913): The classification of the Styelidae. *Zool. Anz.* 41: 482-501.
- KOTT, P. (1952): Ascidians of Australia; 1. Stolido-branchiata. and Phlebobranchiata. *Aust. J. mar. Freshw. Res.* 3: 206-333.
- KOTT, P. (1972a): The ascidians of South Australia II. Eastern Sector of the Great Australian Bight and Investigator strait. *Trans. R. Soc. S. Aust.* 96: 165-196.
- KOTT, P. (1972b): Some sublittoral ascidians in Moreton Bay and their seasonal occurrence. *Mem. Qd. Mus.* 16: 233-260.
- KOTT, P. (1972c): Notes on some ascidians from Port Jackson, Botany Bay and Port Hacking NSW. *Proc. Linn. Soc. N.S.W.* 97: 241-257.
- KOTT, P. (1975): The ascidians of South Australia III. Northern sector of the Great Australian Bight and additional records. *Trans. R. Soc. S. Aust.* 99: 1-20.
- KOTT, P. (1985): The Australian Ascidiacea. Part I. Phlebobranchia and Stolidobranchia. *Mem. Qd. Mus.* 23: 1-440.
- KOTT, P. & I. GOODBODY (1982): The ascidians of Hong Kong.

- Pp. 503-554. In: Proceedings of the First International Marine Biological Workshop: the flora and fauna of Hong Kong and Southern China, Hong Kong, Vol. I (Eds: Morton, B.S. & C.X. Tseng). Hong Kong University Press, Hong Kong.
- KRISHNAN, R., M.R. CHANDRAN & T.K. RENGANATHAN (1989): On the occurrence of four species of ascidians new to Indian waters. *Geobios new Reports* 8: 70-74.
- LESUEUR, C.A. (1823): Descriptions of several new species of Ascidia. *J. Acad. nat. Sci. Philad.* 3: 2-8.
- MICHAELSEN, W. (1918): Die Ptychobranchen and Diktyobranchen Ascidiien des westlichen Indischen Ozeans. *Jb. hamb. wiss. Anst.* 35 (2): 1-71.
- MILLAR, R.H. (1966): Ascidiacea. Port Phillip Survey. *Mem. natn. Mus. Vict.* 27: 357-375.
- REDIKORZEV, V. (1916): Faune de la Russie et des pays limitrophes fondee principalement sur les collections du musee zoologique de l'Academie Imperiale des Science Petrograd. Tunicies (Tunicata). *Fauna Rossi* 1: 1-336.
- RENGANATHAN, T.K. (1981): New record of a simple ascidian *Styela bicolor* (Sluiter 1887) from the Tuticorin Coast of India. *Curr. Sci.* 50: 1008.
- TOKIOKA, T. (1960): Contributions to Japanese ascidian fauna XVIII. Ascidians found in the benthonic samples dredged in the Ariake Sea. 1957-58. *Publs Seto. Mar. Biol. Lab.* 8: 205-221.
- TOKIOKA, T. & T. NISHIKAWA (1975): Contributions to the Japanese ascidian fauna XXVII. Some ascidians from Okinawa with notes on a small collection from Hong Kong. *Publs. Seto. Mar. Biol. Lab.* 22: 325-341.
- TRAUSTEDT, M.P.A. (1883a): Vestindiske Ascidiæ Simplicies. Anden Afdeling. Molgulidae og Cynthiidae. *Vidensk. meddr dansk naturh. Foren.* 1882: 108-136.
- TRAUSTEDT, M.P.A. (1883b): Die einfachen Ascidiien des Golfes von Neapel. *Mitt. Zool. Stat. Neapel* 4: 448-488.
- TRAUSTEDT, M.P.A. (1885): Ascidiæ simplicies fra det Stille Ocean. *Vidensk. meddr dansk naturh. Foren.* 1884: 1-160.
- VAN NAME, W.G. (1912): Simple ascidians of the coasts of New England and neighbouring British Provinces. *Proc. Boston. Soc. nat. Hist.* 34: 439-619.
- VAN NAME, W.G. (1921): Ascidians of the West Indian region and southeastern United States. *Bull. Am. Mus. nat. Hist.* 44: 283-494.
- VAN NAME, W.G. (1930): The ascidians of Porto Rico and Virgin Islands. *Scient. Surv. P. Rico* 10: 403-512.
- VAN NAME, W.G. (1945): The North and South American ascidian. *Bull. Am. Mus. nat. Hist.* 84: 1-476.

19. SPIRALLING WHITEFLY *ALEURODICUS DISPERSUS* RUSSELL (HOMOPTERA: ALEYRODIDAE) INVADES ANDAMANS¹

G. SHYAM PRASAD^{2,3}, S. BHAGAT^{2,4} AND V. JAYAKUMAR^{2,5}

¹Accepted April 23, 2007

²Central Agricultural Research Institute, Port Blair, Andaman and Nicobar Islands 744 101, India.

³Current Address: National Research Centre for Sorghum, Rajendranagar, Hyderabad 500 030, Andhra Pradesh, India. Email: shyamprasad@nrcsorghum.res.in

⁴Email: sombhagat73@rediffmail.com

⁵Email: jkpath@rediffmail.com

Whiteflies, including the Spiralling Whitefly *Aleurodicus dispersus* Russell (Hemiptera: Aleyrodidae), pose a severe threat to many agricultural and horticultural crops, both in glass house and field conditions, due to their wide host range. This pest is native to the Caribbean Islands and Central America. The Spiralling Whitefly is now reported to occur in North America, South America, Asia, Africa, Australia and several Pacific Islands.

In India, it was first reported in 1993, in the Western Ghats, Kerala, Kanyakumari district, Tamil Nadu (Palaniswami *et al.* 1995). It later spread to parts of Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Maharashtra (David and Regu 1995; Palaniswami *et al.* 1995; Ranjith *et al.* 1996; Mani and Krishnamoorthy 1996; Mani *et al.* 2000, 2001). The Spiralling Whitefly is believed to have been introduced into India from the Maldives and Sri Lanka (Ranjith *et al.* 1996) through plant material.

The pest can be easily recognized by the characteristic spiral arrangement of eggs on the lower lamina of leaves, which can be seen as a white patch. The nymphs and adults of Spiralling Whitefly suck the sap from the surface of leaves,

stem and fruits. The copious white, waxy, flocculent material secreted by the nymphs, readily spreads to adjacent vegetation by wind. This sticky honeydew favours the growth

Table 1: Host range of *A. dispersus* in the South Andamans

| Common name | Scientific name | Family |
|---------------|--|---------------|
| Guava | <i>Psidium gujava</i> Linn. | Myrtaceae |
| Banana | <i>Musa</i> sp. Linn. | Musaceae |
| Papaya | <i>Carica papaya</i> Linn. | Caricaceae |
| Red Gram | <i>Cajanas indicus</i> Spreng. | Leguminoseae |
| Curry Leaf | <i>Murraya koenigii</i> Sl. | Rutaceae |
| Cassava | <i>Manihot esculenta</i> Crantz | Euphorbiaceae |
| Brinjal | <i>Solanum melongena</i> L. | Solanaceae |
| Tomato | <i>Lycopersicon esculentum</i> Mill | Solanaceae |
| Chilly | <i>Capsicum annum</i> L. | Solanaceae |
| Lady's Finger | <i>Abelmoschus esculentus</i> (L.) Moench | Malvaceae |
| Canna | <i>Canna indica</i> L. | Cannaceae |
| Tulsi | <i>Ocimum sanctum</i> L. | Labiatae |
| Ageratum | <i>Ageratum conyzoides</i> L. | Compositae |
| Gerbera | <i>Gerbera jamesonii</i> H. Bolus ex J.D. Hook | Compositae |